



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DESCRIPTION OF A NEW GURNARD FROM FLORIDA, WITH NOTES ON THE
COLORS OF SOME OTHER FLORIDA FISHES.

BY HENRY W. FOWLER.

A small collection of fishes has recently been received at the Academy from Dade county, Fla., in the Biscayne Bay region. It was made during February of the past winter. The Academy is indebted to Mr. James Spear, Jr., for this addition to its collections. He was also fortunate in being able to forward the specimens in a nearly fresh state of preservation, so that I can give most of the life colors.

CARANGIDÆ.

1. *Selene vomer* (Linnaeus).

1758. [*Zeus*] *Vomer* Linnaeus, Syst. Nat., Ed. X, I, p. 266; in America.

Color in alcohol with brilliant silvery prevailing, and everywhere with beautiful purplish and bluish reflections. Back and upper surface of the caudal peduncle purplish-brown, deepest along the dorsal profile. A large scattered tract of dusky dots, becoming darker and most distinct immediately above the eye. Axil of the pectoral pale yellowish with dusky dots. Spinous dorsal dusky. Soft dorsal whitish, with the long anterior rays dusky, the longest ray very dark. All the other fins whitish with more or less dusky on their outer portions. Upper and lower anterior margins of caudal lobes dusky.

One example 10 inches in length, from New river.

NOMEIDÆ.

2. *Nomeus gronovii* (Gmelin).

1788. [*Gobius*] *Gronovii* Gmelin, Syst. Nat., I, p. 1,205; in oceano americano zonae torridae.

Color in alcohol dark brown on the back and top of the head, the sides and lower surface silvery-white. The dark brown of the back extends down on the sides in the form of five large saddle-like blotches becoming grayish below. Lower side of the body with six or seven grayish-brown blotches. Lower surface of the head with several grayish blotches. Fins slightly tinged with straw-color, which may be due to the preservative. Spinous dorsal black. Soft dorsal with three broad transverse blackish vertical bands, leaving only narrow pale spaces between. Anal with three narrow transverse blackish

vertical bands, which extend a little on the lower surface of the body, and leave broad spaces between. Two small blackish spots on the lower edge of the caudal peduncle. Caudal with a blackish blotch at the base of each lobe. Median portion of each caudal lobe blackish. Pectoral with a longitudinal median blackish streak, becoming diffuse on the outer portion. Membranes of the ventral black, except the outer portion, which is pale straw-color, like most of the rays.

Length $4\frac{3}{4}$ inches.

One example taken from below a Portuguese man-of-war (*Physalia*) in Biscayne Bay.

SERRANIDÆ.

3. *Diplectrum formosum* (Linnaeus).

1766. [*Perca*] *formosa* Linnaeus, Syst. Nat., Ed. XII, p. 488; Carolina (Coll. D. Garden).

Color in alcohol pale brown above, the lower surface silvery-white. Back and upper side with eight broad transverse deep brown bands, with alternating deep brown narrow bands between. A deep brown band from the tip of the snout to the base of the upper caudal lobe. Above this two similar narrow dusky-brown bars. Where all these bars cross dark areas are formed. The side of the head and trunk are also marked with narrow pale slaty longitudinal lines, each one with a little darker margin. Dorsals and caudal with dilute yellowish-brown, the former marked on the spinous portion with two broad pale slaty longitudinal bands which run back on the soft fin higher and lower, the intervening space marked with another similar parallel band. All of these bands are darker along their edges, and run higher on the posterior soft dorsal, where a fourth runs backward from the base of the sixth ray. Caudal with six more or less connected lines or bands, especially above, so that the fin has a spotted appearance. Anal pale yellowish-white, with many dilute slaty lines. Pectoral and ventral whitish. A dusky spot on the chin. Interorbital space with two narrow connecting lines, also one between the nostrils.

Length 8 inches.

One example from lower Biscayne Bay.

LUTIANIDÆ.

4. *Neomænis apodus* (Forster).

1792. *Perca apoda* Forster, in Walbaum, Pet. Arted. Gen. Pisc., III, p. 351 (Based on *Perca marina pinnis*, etc., Catesby, Nat. Hist. Car. Flor. Bah. II, 1731, p. 4, Pl. 4, lower figure; no locality.)¹

Color in alcohol more or less faded dull uniform olive, pale below.

¹ Credited by Pennant (*Arctic Zoology*, II, 1792, p. 385) to the Bahama isles.

Pale vertical streaks or lines obscure. A slaty line below the eye to the end of the opercle, and another below this. A brown streak across the base of the pectoral.

Two young examples from Card Sound.

5. *Ocyurus chrysurus* (Bloch).

1797. *Sparus chrysourus* Bloch, Ichthyologie, III, Pt. 8, p. 25; les eaux du Brésil.

Sparus Chrysurus Bloch, l. c., Plate 262.

Color in alcohol with upper surface deep olivaceous-gray, and the sides and lower surface rosy. A bright greenish-yellow band from the tip of the snout, at first narrow, and then widening posteriorly until it includes the entire caudal fin. Above this, back, and on the upper surface of the head, are a number of dark greenish-yellow spots. Each scale on the cheek, and lower surface of the head, with a deep rosy spot. Above the lateral line oblique dusky lines with a rosy tinge running up to the base of the dorsal. Between the arch of the lateral line, and the golden lateral band, are about four narrow, deep rosy lines running parallel. Just below the yellow band are also two parallel deep rosy lines leaving a paler rosy space between, then the rest of the lower surface is marked with seven or eight longitudinal bright greenish-yellow narrow bands alternating with similar ones of deep rosy. The lower edge of the abdomen, and under surface of the head, is whitish. The scales on the chest and lower part of the abdomen are more or less whitish basally, producing an imbricated appearance. The top of the head is marked with bright olivaceous spots. Dorsals and anal olivaceous-yellow, the soft dorsal becoming very bright posteriorly. Pectorals and ventrals yellowish-white. Iris red. Lips dusky. Inside of the mouth and gill-opening whitish.

One example 7 inches long, from lower Biscayne Bay. Comparison with Brazilian examples is desirable.

HÆMULIDÆ.

6. *Hæmulon sciurus* (Shaw).

1803. *Sparus Sciurus* Shaw, Gen. Zool., IV, p. 439, Pl. 64; American seas.

Color in alcohol olivaceous-dusky above, paler on the sides, and becoming yellow below. Everywhere more or less brassy. Side with about ten longitudinal slaty-blue stripes, each one edged narrowly with deep slaty. Spinous dorsal dilute grayish-green. Soft dorsal dusky. Caudal dusky, the outer portion dilute greenish-yellow. Anal bright yellowish-green with the base dusky. Pectoral grayish. Ventral bright yellowish-green. Each ramus inside the mouth bright brick-red. Inside of the gill-opening reddish above. Peritoneum black.

One example 9½ inches long, from lower Biscayne Bay.

7. *Hæmulon plumierii* (Lacépède).

1800. *Labrus Plumierii* Lacépède, Hist. Nat. Poiss., III, pp. 432, 480, Plate 2, fig. 2; Amerique.

Color in alcohol brassy grayish-brown, darker on the upper surface. Side with many light blue lines, each one bordered with deep slaty, mostly longitudinal, and those running from the pectoral and ventral very oblique. Fins dusky, and the margins of the membranes of the spinous dorsal narrowly deep brown. Base of ventral dilute greenish. Inside of the base of pectoral yellowish with bluish lines. A brown bar across base of the pectoral. Inside of the mouth, and lower lip posteriorly, orange-red. Outer portion of first ventral ray whitish.

One example $7\frac{1}{8}$ inches long, from lower Biscayne Bay.

SPARIDÆ.

8. *Calamus bajonado* (Schneider).

1801. [*Sparus*] *Bajonado* Schneider, Syst. Ichth., p. 284. (Based on *Bajonado* Parra, Descr. Piez. Hist. Nat., 1787, p. 13, Pl. 8, fig. 1; Cuba.)

Color in alcohol brassy-brown, the margin of each scale with a narrow darker submarginal border. Back a little deeper than the lower surface, which is washed with silvery. A dull bluish line below the eye running forward toward the tip of the snout. Below this an indistinct bluish line, and also several bluish spots on the cheek. A bluish line across the upper edge of the opercle. Two narrow bluish lines running out from the front of the eye. A dusky band from the lower rim of the orbit to the corner of the mouth, and across the mandible. Vertical fins, and ventral, dull slaty mottled with brownish. Pectoral pale brownish-white. Axil of pectoral pale yellowish. Peritoneum silvery. Iris flesh-colored, upper anterior portion dusky.

One example $7\frac{1}{2}$ inches long, from lower Biscayne Bay.

9. *Lagodon rhomboides* (Linnæus).

1766. [*Sparus*] *rhomboides* Linnæus, Syst. Nat., Ed. XII, I, p. 470; in America (Coll. D. Garden).

Color in alcohol dusky-olivaceous on the back, merging into silvery-white on the lower surface. About seven vertical dusky cross-bands, with as many narrower and indistinct ones between. A deep brown blotch on the lateral line above the base of the pectoral. Side with eleven longitudinal slaty-blue bands, the intervening spaces more or less gilded. Fins, with the exception of the ventrals, pale dusky, the basal portions of the dorsals with many large gilded spots. Anal more or less pale golden. Ventral whitish with a large golden basal blotch. Iris clouded with dusky.

One example $4\frac{5}{8}$ inches long, from New river, Fla.

GERRIDÆ.

10. *Eucinostomus harengulus* Goode and Bean.

1879. *Eucinostomus harengulus* Goode and Bean, Proc. U. S. Nat. Mus., p. 132; West Florida (Coll. MM. Kaiser and Martin).

Color in alcohol very pale olivaceous-brown above, more or less silvery, and the lower surface silvery-white. The back is also clouded with a deeper shade of the general body color. All of the scales with a more or less bright metallic bluish or purplish luster. Snout brownish. Upper portion of spinous dorsal blackish. Upper vertical fins slightly brownish, other fins whitish. Iris silvery, with dusky blotches.

One example $3\frac{1}{4}$ inches long, from New river.

11. *Xystæma cinereum* (Walbaum).

1792. *Mugil cinereus* Walbaum,² Pet. Art. Gen. Pisc., III, p. 228. (Based on *Turdus cinereus peltatus* Catesby, Nat. Hist. Car. Flor. Bah., II, 1731, p. 11, Pl. 11, lower figure; no locality.)³

Color in alcohol pale olivaceous-brown, the lower surface whitish. Body washed with silvery, showing purplish-blue reflections. Side with seven vertical dull purplish bands running down from the back. Vertical fins with minute dots of dusky, also on the ventrals. Spinous dorsal and ventrals washed with dilute greenish-yellow. Iris grayish-silvery. Peritoneum white.

One example $11\frac{3}{4}$ inches in length, from New river.

LABRIDÆ.

12. *Iridio bivittatus* (Bloch).

1797. *Labrus bivittatus* Bloch, Ichthyologie, III, Pt. 8, p. 107, Pl. 284, fig. 1; j'eu ignore la patrie.

Color in alcohol greenish-olivaceous, pale or whitish below, and the edge of each scale more or less tinted with dull coppery. A dull purplish band running from the upper part of the eye, narrowly bordered on each side, while on the head, with blue. It runs along the base of the dorsal. A dusky purplish band runs from the side of the snout through the eye to the base of the caudal above, and along the side of the trunk it is very broad. A similar narrow band from the pectoral along the lower side. A narrow pale dusky band starts above the opercle and includes the lateral line till it descends posteriorly.

² I have recently rejected Walbaum's name *Raia birostris*, adopting *Raia manatia* of Schneider. A re-examination of Walbaum convinces me that the word *birostris* is evidently a typographical slip, and that such names as he used in the "Additamentum" are available as binomials, for in every case a specific name is italicised. The name *Mobulidæ* should supersede *Mantidæ*. See *Science*, XVII, April 10, 1903, p. 594.

³ Pennant says (*Arctic Zoology*, II, 1792, p. 377), under his discussion of *Labrus hiatula* Linnaeus, that it inhabits the seas of Carolina, "as I suppose the three former do," of which the one immediately preceding is Catesby's fish.

A pale purplish streak below the base of the pectoral. A purplish Y-shaped bar on the opercle, with narrow pale blue margin, and with a deep violet-blue spot above. Upper lip olive-green. Cheek pale. Mandible with two brownish-purple cross-bars narrowly bordered with pale bluish. Dorsal fins dilute orange, basally dusky, with greenish spots narrowly margined with pale bluish. Anal similar, grayish, and with dull rosy tints. Caudal deep orange-red, marginal portion of the fin blackish, and with pale oblique bluish stripes. Axil of pectoral pale green. Iris bright orange edged with green.

One example $8\frac{3}{4}$ inches long, from lower Biscayne Bay. I am not certain that my fish is identical with Bloch's account, as it also does not agree with his figure. Lacépède's account is less satisfactory.

TETRAODONTIDÆ.

13. *Cheilichthys testudineus* (Linnæus).⁴

1758. [*Tetraodon*] *testudineus* Linnæus, Syst. Nat., Ed. X, p. 332; in India.⁵

Color in alcohol dark slaty-brown, the sides gradually becoming whitish below with a dull ochraceous tinge, especially along the lower side of the head. Large deep blotches of blackish-brown on the back, made up of clusters of crowded spots which leave winding paler lines between. On the sides these spots become separated and are very distinct against the paler background. Axil of the pectoral brown. Fins dull dusky with an indistinct tinge of dilute olivaceous, except the anal which is white. Lower surface of the body chalky-white. Iris yellowish-gray.

One example $8\frac{3}{4}$ inches in length, lower Biscayne Bay.

TRIGLIDÆ.

Merulinus Jordan and Evermann.

Bull. U. S. Nat. Mus. (Fish. N. Mid. Amer.), No. 47, II, 1898, p. 2, 148.

Type [*Trigla*] *carolina*⁶ Linnæus, Mantissa Plant., 1771, p. 528; in *Carolinæ mari* (Coll. D. Garden).

14. *Merulinus salmonicolor* sp. nov.

Head 3; depth $4\frac{3}{4}$; D. X-I, 11; A. II, 9; P. III, 12; V. I, 5; scales

⁴ *Cheilichthys* is given generic rank for those American forms with a broad, flattened, or only slightly concave interorbital space. Type *Tetraodon testudineus* Linnæus.

⁵ The type of the species probably came from tropical America. The rude accounts of Clusius and Willughby throw little light on the subject. I have been unable to consult Dr. Gunther's reference, "*Tetrodon testudineus*, L. Amœn. Acad., i, p. 309, tab. 14, fig. 3." The edition of *Amœnitates Academicæ*, etc., in the Academy's library, has an account of *Ostracion oblongus glaber*, etc., by Balk (1749, p. 591). It is based on Artedi, Willughby, Clusius, Ray and Sloan, and no locality is given. If, however, Linnæus should be found untenable, *Tetrodon geometricus* Schneider is the next name available with certainty.

⁶ This name is transposed from the original.

95 in the lateral line to the base of the caudal, and about 6 more on the base of the caudal; 10 scales between the origin of the soft dorsal and the lateral line in a vertical series, and about 24 between the latter and the origin of the anal; pores 50 in the lateral line to the base of the caudal; width of the head $1\frac{2}{3}$ in its length; depth of head $1\frac{7}{10}$; snout 2; eye $5\frac{2}{3}$; maxillary $2\frac{1}{2}$; mandible $2\frac{1}{8}$; width of mouth at corners $2\frac{2}{3}$; interorbital space $5\frac{1}{2}$; first dorsal spine $2\frac{5}{8}$; third $2\frac{1}{8}$; first dorsal ray $2\frac{1}{3}$; first anal ray $3\frac{1}{2}$; eighth anal ray $2\frac{1}{8}$; upper caudal lobe $1\frac{1}{3}$; least depth of caudal peduncle $4\frac{3}{7}$; ventral $1\frac{1}{3}$; space between bases of innermost ventral rays $3\frac{4}{7}$; ventral spine $2\frac{2}{3}$.

Body rather stout, cylindrical, short in comparison, and thickest anteriorly, so that the greatest depth falls opposite the fourth dorsal spine. The upper profile is evenly convex from above the eyes to the upper region of the caudal peduncle. Lower profile more or less straight. Chest and breast flattened, and broad. Caudal peduncle and posterior portion of the trunk compressed, so that the depth of the former, measured from the base of the last dorsal ray, is about one and four-fifths in its length. The upper and lower surfaces are also somewhat flattened.

Head moderately large, broad and high, and its lower profile horizontal. Snout long, broad, oblique, and the profile straight. The upper jaw projects down a little beyond the anterior profile of the snout, which, when viewed from above, is seen to be concave. On each side broad round processes with denticulated edges are developed, and project anteriorly. At the posterior outer edge of each is a small spine. Eye a little posterior in the head, and impinging on its upper profile. A furrow runs from the lower edge of the eye down along the front of the snout to the nostrils. Mouth large, the jaws moderate, and the lower inferior. Maxillary falling a little short of the front rim of the orbit, and its distal expanded extremity about two-thirds the orbit. Teeth minute, and in rather broad, rasp-like bands, in the jaws. Similar but smaller teeth in narrow bands on the vomer and palatines. Tongue large, broad, thick, smooth, and only the small tip free in front. Lateral articular region of the mandible with a short series of small serræ. Nostrils anterior, near together, the anterior with a little flap, and the posterior a little nearer the tip of the upper jaw than the eye. Interorbital space rather narrow, a trifle less than the internasal space, flattened in the middle, and each side a little elevated. Top of the head very slightly convex.

Bones of the head all with fine radiating striæ. Four preocular spines, the innermost the larger. Two postocular spines. Two tym-

panic spines, the posterior rather large. A small coronal spine. Nuchal spine long. Preopercular, opercular and humeral spines large and strong, and of more or less even size. Anterior and lateral labial bones each with a small spine, that of the latter minute.

Gill-opening extending forward nearly opposite the posterior nostril. Gill-rakers III 1+8 VI, compressed, short, their inner edges with minute asperities, and the longest a little shorter than the longest filaments, which are half the eye diameter. Pseudobranchiæ large. Isthmus very broad, flattened, and the gill-membrane free.

Peritoneum silvery.

Anus close to the origin of the anal fin.

Scales small, finely ciliated, and greatly reduced on the front of the back. Scales on the belly small and smooth. Base of the caudal scaly. Space between pectoral and ventral naked. Lateral line composed of simple tubes, high, continuous, mostly concurrent with the dorsal profile, and running down a little above the middle of the caudal peduncle.

Origin of the spinous dorsal directly after the base of the pectoral, the third spine the highest, the first longer than fifth, and the others all graduated down to the last, which is very short. The soft dorsal is inserted a little nearer the front of the eye than the base of the caudal, the anterior rays a little the highest, and like the spinous fin, depressable in a rather broad groove. Margin of the soft dorsal with small notches. Caudal long, truncate. Anal inserted below the origin of the soft dorsal, the spines flexible, shorter than the rays, and the second a little the longer. Margin of the rayed anal deeply notched, and the penultimate ray the longest. Pectoral long, reaching opposite the base of the last anal ray, and the eighth ray the longest. Ventral long, reaching the anal fin, and the third and fourth rays the longest and about equal.

Color in alcohol deep olivaceous-brown on the upper surface, indistinctly variegated with small darker specks. On the head these are more distinct and form short wavy lines. Edges of the mouth and gill-opening pale yellowish, the latter somewhat tinged with salmon. Lower surface of the body white, the flanks tinted with salmon-pink. Anal pink. Dorsals and caudal dusky, the former marked with diffuse darker spots. A dark spot in front of the third dorsal spine near its margin. Pectoral blackish, variegated with rather large black spots, and its inner ray whitish basally. Ventrals whitish, with many dusky dots. Iris grayish-brown. Inside of the gill-opening brassy-dusky and blackish.

Length 10 inches.

Type No. 24,343, A. N. S. P. New river, Dade county, Fla. Coll. Mr. James Spear.

One example. This species is related to *Merulinus carolinus*, *M. scitulus*, *M. roseus* and *M. alatus*. It is closer to the latter in squamation, but differs in more gill-rakers and shorter pectoral. The preopercular spine is also shorter. From the other species it is chiefly distinguished by its bright salmon-pink anal fin.

(*Salmo*, the salmon, *color*, color; referring to the anal fin.)

15. *Prionotus evolans* (Linnaeus).

1766. [*Trigla*] *evolans* Linnaeus, Syst. Nat., Ed. XII, p. 498; in Carolina.

Color in alcohol dull olivaceous-dusky above, the lower surface whitish. Back with three dark cross-bands, and indistinct darker mottlings. Head also mottled with darker, sometimes forming diffuse lines. A blackish bar across the interorbital space. Dorsals and caudal grayish-brown diffused with darker. Pectoral slaty-black with rather large round blackish spots and the edge of the inner ray whitish. Other fins white, the ventrals soiled a little on their median outer surface. Inside of the gill-opening dull yellow, reddish on the shoulder-girdle. Eye deep gray-brown.

One example 9 $\frac{3}{8}$ inches long, from New river.

ECHENEIDIDÆ.

16. *Echeneis alba-cauda* Mitchill.

1817. *Echeneis alba-cauda* Mitchill, Amer. Month. Mag. Crit. Rev., II, p. 244; in the bay of New York, June 22, 1815.

Color in alcohol dull brown. A broad lateral blackish-brown band running from the mouth to the base of the caudal, and bordered narrowly below with dull slaty-white. Lower rays of the dorsal and anal dusky-brown, and this color extending forward on these fins for the same height, but becoming a little pale. The remaining outer portions of the anterior rays and edges, narrowly, of the others, whitish. Caudal blackish, with the upper and lower corners narrowly whitish. Ventral and pectoral blackish, with grayish posterior margins. Iris blackish-brown.

Length 5 $\frac{5}{8}$ inches.

One example taken off of a large shark, evidently *Scolidon terrænove?*, judging by a photograph, captured in Carson's creek at Biscayne Bay. It has 22 laminae in the disk, and the median caudal rays project. I prefer the separation of this species from the Indian, until examples are compared.